

Notice of Allowability

Application No.

09/978,344

Examiner

Dr. Kailash C. Srivastava

Applicant(s)

DENNIS ET AL.

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 31 January 2005.
2. ☒ The allowed claim(s) is/are 43-53.
3. ☒ The drawings filed on 16 October 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>03.31.2005</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT AND COMMENTS

1. In view of the papers filed on 08 September, 2003 to correct inventorship under 37 CFR §§1.47 and 1.48, including the fee set forth in 37 CFR §1.17(h) and (i), it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR §1.48a. In view of the petition and oath filed 08 September 2003, the inventorship of this application has been changed. Manoj Varshney has been added as the additional inventor. The corrected Office Records (e.g., Bibliographic Data Sheet) reflect the inventorship as corrected.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR §1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Dr. John Murray, Applicants' Representative on 31 March 2005.

IN TITLE:

Replace the existing title with following title:

--A NANOSIZE PARTICLE FOR DETOXIFICATION AND DECONTAMINATION--

IN CLAIMS:

Cancel Claims 21-42 and replace claims 21-32 with following claims:

--

1. A particle, comprising:

(a) a first region comprising an enzyme that transforms a toxic compound into a substantially inactive compound; and

(b) a second region comprising a material that partitions said toxic compound into said second region; wherein said partitioning results in a high local concentration of said toxic compound,

wherein said first region is in contact with at least a portion of said second region.

2. The particle of claim 1, wherein said material that partitions said toxic compound into said second region is hydrophobic.

- ³
~~48~~. The particle of claim ¹~~43~~, further comprising a surface film, wherein said material that partitions said toxic compound into said second region is an oil, wherein said surface film encapsulates said oil, and wherein said enzyme is dispersed in said oil.
- ⁴
~~48~~. The particle of claim ¹~~43~~, further comprising an inorganic or polymer shell, wherein said material that partitions said toxic compound into said second region is an oil, wherein said inorganic or polymer shell encapsulates said oil, and wherein said enzyme is dispersed in said oil.
- ⁵
~~49~~. The particle of claim ⁴~~48~~, wherein said inorganic or polymer shell is porous to said toxic compound.
- ⁶
~~48~~. The particle of claim ⁴~~48~~, wherein said inorganic or polymer shell contains pores.
- ⁷
~~49~~. The particle of claim ¹~~43~~, wherein said first region further comprises a hollow tube open at least at one end; wherein said hollow tube comprises an inorganic or polymer material; wherein said enzyme is attached to a surface of said tube and wherein said material that partitions said toxic compound is a hydrophobic compound attached to an inside surface of said tube.
- ⁸
~~50~~. The particle of claim ⁷~~49~~, wherein said inorganic material is silica.
- ⁹
~~51~~. The particle of claim ⁷~~49~~, wherein said hydrophobic compound is an alkyl compound.
- ¹⁰
~~52~~. The particle of claim ¹~~43~~, wherein said particle has a size from approximately 1 to 200nm.
- ¹¹
~~53~~. The particle of claim ¹⁰~~52~~, wherein said particle has a size from approximately 1 to 5nm.

Insert the following abstract after the Claims:

--

A particle with two regions, the first region contains a detoxifying enzyme and a second region that partitions toxic compounds. The particle may be a nanoparticle.

--

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kailash C. Srivastava whose telephone number is (571) 272-0923. The examiner

can normally be reached on Monday to Thursday from 7:30 A.M. to 6:00 P.M. (Eastern Standard or Daylight Savings Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn, can be reached on (571)-272-0926 Monday through Thursday. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding may be obtained from the Patent Application Information Retrieval (i.e., PAIR) system. Status information for the published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (i.e., EBC) at: (866)-217-9197 (toll-free). Alternatively, status inquiries should be directed to the receptionist whose telephone number is (703) 308-0196.

Kailash C. Srivastava, Ph.D.
Patent Examiner
Art Unit 1651
(571) 272-0923



KAILASH SRIVASTAVA
PATENT EXAMINER
ART. UNIT 1651

April 4, 2005

**EXAMINER'S PROPOSED AMENDMENT AND COMMENTS
DRAFT**

IN TITLE:

Replace the existing title with following title:

--A NANOSIZE PARTICLE FOR DETOXIFICATION AND DECONTAMINATION--

IN CLAIMS:

Cancel Claims 21-42 and replace claims 21-32 with following claims:

--

43. A particle, comprising:

- (a) a first region comprising an enzyme that transforms a toxic compound into a substantially inactive compound; and
 - (b) a second region comprising a material that partitions said toxic compound into said second region; wherein said partitioning results in a high local concentration of said toxic compound,
- wherein said first region is in contact with at least a portion of said second region.

44. The particle of claim 43, wherein said material that partitions said toxic compound into said second region is hydrophobic.

45. The particle of claim 43, further comprising a surface film, wherein said material that partitions said toxic compound into said second region is an oil, wherein said surface film encapsulates said oil, and wherein said enzyme is dispersed in said oil.

46. The particle of claim 43, further comprising an inorganic or polymer shell, wherein said material that partitions said toxic compound into said second region is an oil, wherein said inorganic or polymer shell encapsulates said oil, and wherein said enzyme is dispersed in said oil.

47. The particle of claim 46, wherein said inorganic or polymer shell is porous to said toxic compound.
48. The particle of claim 46, wherein said inorganic or polymer shell contains pores.
49. The particle of claim 43, wherein said first region further comprises a hollow tube open at least at one end; wherein said hollow tube comprises an inorganic or polymer material; wherein said enzyme is attached to a surface of said tube and wherein said material that partitions said toxic compound is a hydrophobic compound attached to an inside surface of said tube.
50. The particle of claim 49, wherein said inorganic material is silica.
51. The particle of claim 49, wherein said hydrophobic compound is an alkyl compound.
52. The particle of claim 43, wherein said particle has a size from approximately 1 to 200nm.
53. The particle of claim 52, wherein said particle has a size from approximately 1 to 5nm.

Insert the following abstract after the Claims:

--

A particle with two regions, the first region contains a detoxifying enzyme and a second region that partitions toxic compounds. The particle may be a nanoparticle.

--